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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,908	11/13/2003	Anton Nekovar	32860-000660/US	7317
30596	7590	05/20/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			HO, ALLEN C	
P.O.BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
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DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/705,908	Applicant(s) NEKOVAR, ANTON	
	Examiner Allen C. Ho	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-20 recite a system control in passive and narrative languages. It is unclear what actions are carried out by the system control. The applicant is requested to rewrite the claim using more active languages such as "a system control configured to: ...". Furthermore, it is unclear what is meant by useful signal; a dark signal is useful when it is subtracted from an x-ray image signal.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: x-ray source.

Claims 1-20 recite "in the absence of x-radiation". It is unclear what meaning should be attached to this condition; does it mean at some time the CCD camera would be exposed to x-rays, or that the CCD camera does not work with x-rays at all? Although the preamble recites an x-ray diagnostic system, there is nothing in the body of the claims that would actually generate x-rays. Furthermore, claims 2, 3, 6, 19, and 20 recite the x-ray system is triggered for the

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emission of x-radiation. Again, there is no x-ray source claimed in the body of the claims to actually accomplish this task.

4. Claims 5 and 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: C-arm.

Claims 5 and 10-16 recite a phase-angle sensor. However, it is unclear what is the phase-angle that it measures. Without a C-arm to support the CCD camera, this phase-angle cannot be defined.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 6, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1).

With regard to claim 1, Tamura *et al.* disclosed an x-ray diagnostic system (Fig. 21), comprising: a CCD camera (5004; paragraph [0013]); a device (x-ray radiation switch) for generating external trigger pulses (paragraph [0012]); and a system control (5002) configured to: (1) read the CCD camera in the absence of x-rays at regular time interval (paragraph [0037]), (2) read the CCD camera when triggered by an external trigger pulse when no readout of the CCD

camera is taking place (paragraph [0044]), and (3) to suppress a readout when an external trigger pulse occurs at a point in time at which the readout of the CCD camera is taking place (paragraph [0045]).

With regard to claim 2, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 1, wherein, when an external trigger pulse occurs at a point in time at which a readout of the CCD camera takes place, a readout without a useful signal is initially carried out and then the x-ray diagnostic system is triggered for the emission of x-radiation (paragraph [0045]).

With regard to claim 3, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 1, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera takes place, a readout without a useful signal is initially carried out and then the x-ray diagnostic system is triggered for the emission of x-radiation (paragraph [0044]).

With regard to claim 6, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 2, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera takes place, a readout without a useful signal is initially carried out and then the x-ray diagnostic system is triggered for the emission of x-radiation (paragraph [0044]).

With regard to claim 17, Tamura *et al.* disclosed an x-ray diagnostic system, comprising: a CCD camera (5004); means (x-ray radiation switch) for generating an external trigger pulse; and means (5002) for providing a readout when no readout of the CCD is taking place (paragraph [0044]); and means (5002) for suppressing a readout when an external trigger pulse is generated when a readout of the CCD camera is taking place (paragraph [0045]).

With regard to claim 18, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 17, wherein the means for providing is configured to read the CCD camera at a regular time intervals (paragraph [0037]).

With regard to claim 19, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 17, wherein, when an external trigger pulse occurs at a point in time at which a readout of the CCD camera takes place, the x-ray diagnostic system is immediately triggered for the emission of x-radiation and the useful signal is subsequently read out (paragraph [0038]).

With regard to claim 20, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claim 17, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera takes place, a readout without a useful signal is initially carried out and then the x-ray diagnostic system is triggered for the emission of x-radiation (paragraph [0044]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) as applied to claims 1-3 and 6 above, and further in view of Haaker *et al.* (U. S. Patent No. 5,117,446).

With regard to claims 4 and 7-9, Tamura *et al.* disclosed the x-ray diagnostic system as claimed in claims 1-3 and 6. However, Tamura *et al.* failed to teach that the device for generating external trigger pulses is an ECG electrode.

Haaker *et al.* disclosed an x-ray diagnostic system comprising an ECG electrode (26) for generating external trigger pulses. Haaker *et al.* taught that the same cardiac phase could be repeatedly imaged by synchronizing the x-ray pulses with an ECG signal (column 3, lines 30-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ an ECG for generating external trigger pulses, since a person would be motivated to examine a particular cardiac phase by synchronizing x-ray pulses with an ECG signal.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Tashiro *et al.* (U. S. Patent No. 6,801,598 B2) disclosed a radiation sensing apparatus.
- (2) Keren (U. S. Patent No. 6,574,500 B2) disclosed an apparatus for angiographic imaging.
- (3) Nagai *et al.* (U. S. Patent No. 6,285,738 B1) disclosed a high-definition still picture real-time display type x-ray diagnostic apparatus.

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- (4) Kaifu (U. S. Patent No. 6,127,684) disclosed a photoelectric conversion apparatus and method of driving the apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
Art Unit 2882

18 May 2005